ABSTRACTS

MALE MONOSEX PRODUCTION IN TILAPIAS: A REVIEW

Jean-François Baroiller*[1,2], Helena D'Cotta[1,2]

1. ISEM, UNIV. MONTPELLIER, CNRS, IRD, EPHE, MONTPELLIER, FRANCE
2. CIRAD-UMR ISEM, MONTPELLIER, FRANCE
baroiller@cirad.fr

Tilapia is now the second most produced group of fish in the world. With the exception of a few very specific culture conditions, the use of monosex male populations makes it possible to optimize the profitability of tilapia production, on the one hand by preventing reproduction, and on the other hand by taking advantage of the best growth rate of males. Two main approaches are used to produce these monosex populations: a genetic approach based on the use of YY males (or ZZ females in blue tilapia) or on hybridization between certain tilapia species, and a sexual inversion approach induced by hormonal or thermal treatments. The advantages and disadvantages of each of these methods are presented. The ease of implementation, efficiency and low cost of hormonal treatments make this approach the most widespread for the production of male monosex populations. However, at a worldwide scale, large amounts of hormones are consequently used, which raises debates on the sustainability of tilapia farms using such treatments, and on their consequences at least on water quality and biodiversity. Indeed, data on the accumulation of 17α-methyltestosterone (MT) in water and sediment are few and sometimes contradictory. In ponds, under very specific conditions, certain bacteria are capable of degrading MT. More sustainable alternative approaches are now proposed. These include the use of genetic markers linked to sex chromosomes or the thermosensitivity of sex differentiation.